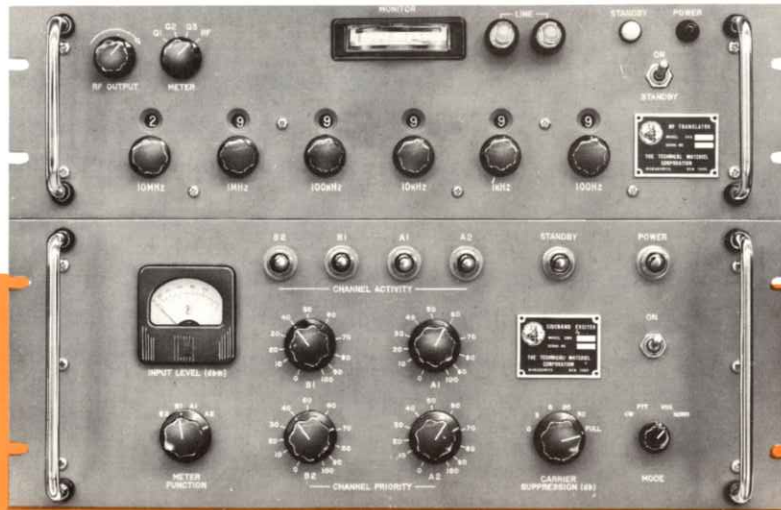


FOUR CHANNEL SYNTHESIZED SOLID STATE EXCITER

TMC
SBG-4

CW · AM · AME · USB · LSB · ISB · FSK · FAX 1 PART IN 10^8 PER DAY STABILITY

- TOTALLY SOLID STATE • MULTI-CHANNEL/MULTI-MODE • 1 PART IN 10^8 PER DAY STABILITY • RAPID DIGITAL FREQUENCY SELECTION • UP TO 250 MILLI-WATTS PEP OUTPUT POWER • INDEPENDENT CHANNEL ACTIVITY INDICATORS
- COMPATIBLE, INCLUDING ALDC, WITH ALL TMC AND OTHER STANDARD LINEAR AMPLIFIER SYSTEMS • INDEPENDENT CHANNEL PRIORITY CONTROLS (APPORTIONS PERCENTAGE OF EXCITER OUTPUT POWER ALLOCATED PER CHANNEL)
- 4 DISCRETE 3 KHz CHANNELS, WITH INDEPENDENT CHANNEL SQUELCH AND VOX (FOR IDLE CHANNEL SQUELCH AND VOICE FREQUENCY REACTIVATION)

THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES



TMC
SBG-4

GENERAL DESCRIPTION AND APPLICATIONS

The TMC Model SBG-4 Series, Four Channel Independent Sideband Exciter is a compact all solid state unit designed particularly to accommodate the high capacity, multi-channel voice, teletype, data and FAX requirements of critical commercial and government point-to-point and tactical circuits. It is readily adaptable however to the less sophisticated single channel CW, FSK, FAX, USB or LSB requirements of back-up or other circuits where frequency allocations or operational needs dictate.

The small size, versatility and operational simplicity of this Exciter make it especially suitable for transportable applications. Radio operators will immediately appreciate the ease of operation. Output frequencies are easily set up without any calculation, and are displayed clearly in digital form. No tuning or peaking is required.

By the use of the Model SBG-4 Series Exciter, four separate and discrete voice-frequency channels may be transmitted simultaneously by a single transmitter.

Idle Channel Squelch and VOX control are particularly valuable for intermittent channel usage, to preclude idle channel noise transmission, by the transmitter, when a channel is not in use. VOX reactivation of the idle channel is automatic and virtually instantaneous whenever the idle channel is activated. When all four voice-frequency channels are inactive for a preset period of time, an Exciter Standby circuit can be activated to place an entire transmitter in the Standby condition pending reactivation of a channel. The Idle Channel Squelch feature is particularly valuable with modern transmitters having an automatic power output level control, inasmuch as the total average transmitter output power remains the same whenever channels are inactivated, thus increasing the output power per activated channel. The SBG-4 Series Exciter has an ALDC input which can be employed with an associated linear amplifier to maintain constant drive level and prevent over-modulation of the amplifier during input level changes.

As indicated by the foregoing, the TMC SBG-4 Series Exciter is an exceptionally versatile, simple and functionally adaptable unit; yet it has the advanced "state-of-the-art" circuitry and applicability which project it into the future, while accommodating the past! It is an ideal unit for updating and stabilizing older SSB transmitters with higher stability.

TECHNICAL SPECIFICATIONS

IMC SBG-4

FREQUENCY RANGE	1.6-29.9999 MHz in 100 Hz increments. Remote tuning available — See OPTIONS.
FREQUENCY PRESENTATION	Direct Reading, digital.
MODES OF OPERATION	ISB, SSB, AM, AME, CW; FSK and FAX
OUTPUT POWER	Continuously adjustable from 0 to 250 milliwatts PEP for any mode of operation.
OUTPUT IMPEDANCE	50 ohms nominal.
FREQUENCY STABILITY	1 Part in 10 ⁸ per day with ambient temperature change of 15 degrees within the range of 0-50 degrees Centigrade.
METERING	Built-in multi-meter permits monitoring RF Output and critical RF circuits. VU meter permits monitoring channel input levels.
TUNING	Digital frequency selection is made by front panel controls.
SIGNAL DISTORTION RATIO	Distortion products are at least 40 db below either tone of a two tone test at 100 mw.
UNWANTED SIDEBAND REJECTION	A signal at 500 Hz is at least 60 db down from PEP in the unwanted sideband.
SPURIOUS SIGNALS	Spurious signals greater than 120 Hz removed from the carrier are at least 60 db below full PEP output.
HUM AND NOISE LEVEL	Noise level is at least 60 db below either tone of a two tone test.
CARRIER SUPPRESSION	0, -3, -6, -20, -30 db and FULL (-55 db).
ALDC	Accepts 0 to approximately -11 Volts DC from ALDC circuit of an associated linear amplifier to improve linearity, limit distortion and deliver a relatively constant output level during high modulation peaks or load changes.
AUDIO INPUT CHANNELS	Four, designated A1, A2, B1, B2.
CHANNEL INPUT IMPEDANCE	600 ohms, balanced or unbalanced.
CHANNEL RESPONSE	Passband filter ripple within ± 1 db, 350-3040 Hz on direct and 350-3040 Hz on translated (outboard) channels.
INPUT DYNAMIC RANGE	-20 dbm to +5 dbm.
SUB-CARRIER FREQUENCY	6290 Hz from Carrier Frequency, synthesized. Also available with 6250 Hz CCIR subcarrier frequency.
CHANNEL PRIORITY CONTROL	Power allocation for each channel controllable from 5% to 100% by individual front panel controls.
SQUELCH AND VOX	Inactive channels automatically disabled to prevent transmission of noise. VOX control on each channel reactivates channel when audio input exceeds -20 dbm.
ENVIRONMENTAL CONDITIONS	Designed to operate in any ambient temperature between 0 degrees Centigrade and +50 degrees Centigrade, and any value of humidity up to 95%.

TMC SBG-4 FOUR CHANNEL SYNTHESIZED SOLID STATE EXCITER

TECHNICAL SPECIFICATIONS CONTINUED...

INSTALLATION DATA

Size: 12¼ inches High x 19 inches Wide x 20 inches Deep. (21.5 cm high x 48.25 cm Wide x 50.8 cm Deep)
Weight: Approximately 65 lbs. (28 Kg)

PRIMARY POWER

115/230 Volts +10%, 50/60 Hz, Single Phase, 100 Watts.

LOOSE ITEMS

Mating coaxial fittings (BNC), Power cords and technical manual.

COMPONENTS AND CONSTRUCTION

All equipment manufactured in accordance with U.S. JAN/MIL specifications wherever practicable.

OPTIONS AND ACCESSORIES

CSS-2, EXTERNAL STANDARD

Provides 1 part in 10⁶ Stability.

REMOTE OPERATIONS

May be equipped for remote operation of the digital frequency selector and mode selection. Please consult your "TMC" representative for the most economical solution to your remote control requirement.



THE TECHNICAL MATERIEL CORPORATION

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